RT² Profiler PCR Array (Rotor-Gene® Format)

Rat Stem Cell Signaling

Cat. no. 330231 PARN-047ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Rat Stem Cell Signaling RT² Profiler PCR Array profiles the expression of 84 key genes involved in signal transduction pathways important for embryonic stem cell (ESC) and induced pluripotent stem cell (iPSC) maintenance and differentiation. A variety of growth factors maintains pluripotent status and directs differentiation of ESC and iPSC cells. If an initial stem cell line lacks the corresponding signaling effectors recognizing those growth factors, precious time and resources would be wasted attempting to differentiate unresponsive cells. Therefore, evaluating the expression of signaling genes in pluripotent and multipotent stem cells helps researchers screen clones for the presence of the differentiation signaling machinery. The array represents the receptors and transcription factors of the major signaling pathways involved in pluripotent cell maintenance and differentiation, including Fibroblast Growth Factor, Hedgehog, Notch, TGF? and WNT. Monitoring the expression of receptors and co-receptors insures that stem cells can recognize the necessary growth factors or other receptor ligands. Monitoring the expression of transcription factors and co-factors insures that the activated signaling pathway can successfully regulate gene transcription for the desired differentiation program. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of signaling genes involved in ESC and iPSC maintenance and differentiation with this array.

For further details, consult the *RT² Profiler PCR Array Handbook*.

Shipping and storage

RT² Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

For long term storage, keep plates at –20°C.

Note: Ensure that you have the correct RT² Profiler PCR Array format for your real-time cycler (see table above).

Note: Open the package and store the products appropriately immediately on receipt.

Array layout

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.87899	NM_024486	Acvr1	Activin A receptor, type I
A02	Rn.214018	NM_199230	Acvr1b	Activin A receptor, type IB
A03	Rn.10580	NM_139090	Acvr1c	Activin A receptor, type IC
A04	Rn.161783	NM_031571	Acvr2a	Activin A receptor, type IIA
A05	Rn.24240	NM_031554	Acvr2b	Activin A receptor, type IIB
A06	Rn.10631	NM_022441	Acvrl1	Activin A receptor type II-like 1
A07	Rn.10165	NM_030998	Amhr2	Anti-Mullerian hormone receptor, type II
A08	Rn.264	NM_001107703	Bcl9	B-cell CLL/lymphoma 9
A09	Rn.32447	NM_001106817	Bcl9l	B-cell CLL/lymphoma 9-like
A10	Rn.88925	NM_030849	Bmpr1a	Bone morphogenetic protein receptor, type IA
A11	Rn.215592	NM_001024259	Bmpr1b	Bone morphogenetic protein receptor, type IB
A12	Rn.59276	NM_080407	Bmpr2	Bone morphogenetic protein receptor, type II (serine/threonine kinase)
B01	Rn.64495	NM_023963	Cdx2	Caudal type homeo box 2
B02	Rn.108128	NM_133381	Crebbp	CREB binding protein
B03	Rn.112601	NM_053357	Ctnnb1	Catenin (cadherin associated protein), beta 1
B04	Rn.52317	XM_574892	E2f5	E2F transcription factor 5
B05	Rn.187025	NM_001010968	Eng	Endoglin
B06	Rn.12447	XM_576312	Ep300	E1A binding protein p300
B07	Rn.9797	NM_024146	Fgfr1	Fibroblast growth factor receptor 1
B08	Rn.12732	NM_001109892	Fgfr2	Fibroblast growth factor receptor 2
B09	Rn.23671	NM_053429	Fgfr3	Fibroblast growth factor receptor 3
B10	Rn.24104	NM_001109904	Fgfr4	Fibroblast growth factor receptor 4
B11	Rn.6575	NM_021266	Fzd1	Frizzled homolog 1 (Drosophila)
B12	Rn.92324	NM_172035	Fzd2	Frizzled homolog 2 (Drosophila)
C01	Rn.178695	NM_153474	Fzd3	Frizzled homolog 3 (Drosophila)
C02	Rn.48736	NM_022623	Fzd4	Frizzled homolog 4 (Drosophila)
C03	Rn.24792	NM_173838	Fzd5	Frizzled homolog 5 (Drosophila)
C04	Rn.2740	NM_001130536	Fzd6	Frizzled homolog 6 (Drosophila)
C05	Rn.1806	XM_237191	Fzd7	Frizzled homolog 7 (Drosophila)
C06	Rn.199029	NM_001044251	Fzd8	Frizzled homolog 8 (Drosophila)
C07	Rn.96335	NM_153305	Fzd9	Frizzled homolog 9 (Drosophila)
C08	Rn.219157	XM_345832	Gli1	GLI family zinc finger 1
C09	Rn.38778	NM_001107169	Gli2	GLI family zinc finger 2
C10	Rn.199034	NM_080405	Gli3	GLI-Kruppel family member GLI3
C11	Rn.12138	NM_001008725	Il6st	Interleukin 6 signal transducer
C12	Rn.21926	NM_130429	Lef1	Lymphoid enhancer binding factor 1
D01	Rn.14529	NM_031048	Lifr	Leukemia inhibitory factor receptor alpha
D02	Rn.12698	NM_001106321	Lrp5	Low density lipoprotein receptor-related protein 5
D03	Rn.32960	NM_001107892	Lrp6	Low density lipoprotein receptor-related protein 6
D04	Rn.40942	NM_021587	Ltbp1	Latent transforming growth factor beta binding protein 1
D05	Rn.40921	NM_021586	Ltbp2	Latent transforming growth factor beta binding protein 2
D06	Rn.202129	NM_001191561	Ltbp3	Latent transforming growth factor beta binding protein 3
D07	Rn.7961	NM_001170336	Ltbp4	Latent transforming growth factor beta binding protein 4
D08	Rn.51975	NM_174864	Ncstn	Nicastrin
D09	Rn.22934	NM_001107425	Nfat5	Nuclear factor of activated T-cells 5
D10	Rn.214090	NM_001107805	Nfatc2	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2
D11	Rn.217507	NM_001108447	Nfatc3	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 3
D12	Rn.23727	NM_001107264	Nfatc4	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 4
E01	Rn.25046	NM_001105721	Notch1	Notch homolog 1, translocation-associated (Drosophila)
E02	Rn.65930	NM_024358	Notch2	Notch homolog 2 (Drosophila)
E03	Rn.53876	NM_020087	Notch3	Notch homolog 3 (Drosophila)
E04	Rn.12967	NM_001002827	Notch4	Notch homolog 4 (Drosophila)
E05	Rn.44440	NM_019163	Psen1	Presenilin 1
E06	Rn.11045	NM_031087	Psen2	Presenilin 2
E07	Rn.1240	NM_001008764	Psenen	Presenilin enhancer 2 homolog (C. elegans)
E08	Rn.105585	NM_053566	Ptch1	Patched homolog 1 (Drosophila)
E09	Rn.103010	NM_001107992	Ptchd2	Patched domain containing 2

Position	UniGene	GenBank	Symbol	Description
E10	Rn.24988	NM_001106447	Pygo2	Pygopus 2
E11	Rn.208977	XM_001055763	Rbl1	Retinoblastoma-like 1 (p107)
E12	Rn.11020	NM_031094	Rbl2	Retinoblastoma-like 2
F01	Rn.219869	NM_001108604	Rbpjl	Recombination signal binding protein for immunoglobulin kappa J region-like
F02	N/A	XM_001058445	RGD1560225	Similar to nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 1
F03	Rn.22326	NM_001107524	Rgma	RGM domain family, member A
F04	Rn.10635	NM_013130	Smad1	SMAD family member 1
F05	Rn.2755	NM_019191	Smad2	SMAD family member 2
F06	Rn.10636	NM_013095	Smad3	SMAD family member 3
F07	Rn.9774	NM_019275	Smad4	SMAD family member 4
F08	Rn.146857	NM_021692	Smad5	SMAD family member 5
F09	Rn.42472	NM_001109002	Smad6	SMAD family member 6
F10	Rn.29980	NM_030858	Smad7	SMAD family member 7
F11	Rn.10862	NM_138872	Smad9	SMAD family member 9
F12	Rn.44429	NM_012807	Smo	Smoothened homolog (Drosophila)
G01	Rn.44609	NM_012655	Sp1	Sp1 transcription factor
G02	Rn.10247	NM_012747	Stat3	Signal transducer and activator of transcription 3
G03	Rn.211670	NM_001024899	Sufu	Suppressor of fused homolog (Drosophila)
G04	Rn.33103	NM_001107865	Tcf3	Transcription factor 3
G05	Rn.106335	XM_343891	Tcf7	Transcription factor 7, T-cell specific
G06	Rn.105849	XM_001054844	Tcf7l2	Transcription factor 7-like 2 (T-cell specific, HMG-box)
G07	Rn.44402	NM_012775	Tgfbr1	Transforming growth factor, beta receptor 1
G08	Rn.9954	NM_031132	Tgfbr2	Transforming growth factor, beta receptor II
G09	Rn.9953	NM_017256	Tgfbr3	Transforming growth factor, beta receptor III
G10	Rn.12953	NM_001106907	Tgfbrap1	Transforming growth factor, beta receptor associated protein 1
G11	Rn.198958	NM_001105969	Vangl2	Vang-like 2 (van gogh, Drosophila)
G12	Rn.59710	NM_001033701	Zeb2	Zinc finger E-box binding homeobox 2
H01	Rn.94978	NM_031144	Actb	Actin, beta
H02	Rn.1868	NM_012512	B2m	Beta-2 microglobulin
H03	Rn.47	NM_012583	Hprt1	Hypoxanthine phosphoribosyltransferase 1
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H06	N/A	U26919	RGDC	Rat Genomic DNA Contamination
H07	N/A	SA_00104	RTC	Reverse Transcription Control
H08	N/A	SA_00104	RTC	Reverse Transcription Control
H09	N/A	SA_00104	RTC	Reverse Transcription Control
H10	N/A	SA_00103	PPC	Positive PCR Control
H11	N/A	SA_00103	PPC	Positive PCR Control
H12	N/A	SA_00103	PPC	Positive PCR Control

Related products

For optimal performance, RT² Profiler PCR Arrays should be used together with the RT² First Strand Kit for cDNA synthesis and RT² SYBR® Green qPCR Mastermixes for PCR.

Product	Contents	Cat. no.
RT² First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT² SYBR Green ROX™ FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

* Larger kit sizes available; please inquire.

RT² Profiler PCR Array products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

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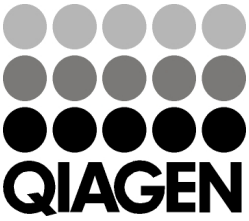

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